

# A Review of the Genus *Myersina* (Pisces: Gobiidae), with the Description of a New Species

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## ABSTRACT

The genus *Myersina* is characterised, and the type species, *Myersina macrostoma*, re-described from the holotype and recently collected specimens from Japan. *Myersina lachneri* is described as a new species based on four specimens from New Britain.

## INTRODUCTION

Approximately 500 gobioid genera have been described, and between 200 and 300 are probably distinct (Hoesé, unpublished). Unfortunately in many cases the genera have not been adequately described and the type species often have not been figured. A large percentage of the described genera have not been revised or treated in any major work on gobioid fishes. As a result taxonomists have generally been frustrated in attempting to identify gobioid fishes. Many of the Indo-west Pacific genera have been regarded as monotypic. Recent studies are indicating that few monotypic gobioid genera exist. Relatively few of the monotypic genera previously recognized resulted from deliberate splitting of closely related forms. In most cases early workers were simply unaware that a genus had been described previously or lacked sufficient comparative material. In many cases incorrect generic placement of described species has also contributed to the apparent high degree of monotypy. Finally, the more intensive collecting effort in recent years has revealed undescribed species in genera thought to be monotypic.

In the present study we redefine the genus *Myersina*, a poorly known gobiid genus found in burrows in shallow waters of the western Pacific. The genus is shown to contain two species, *M. macrostoma* Herre and *M. lachneri*, n. sp.

Counts and measurements of the fish follow those given by Hubbs and Lagler (1958) and Hoesé and Steene (1978). The transverse scale count is taken from the anal fin origin upward and backward to the base of the second dorsal fin. The term transverse in relation to the sensory papillae patterns refers to both vertical and transverse rows as is standard in gobioid descriptions.

Material for this study is deposited in the following institutions: Australian Museum, Sydney; AMS. British Museum (Natural History); BMNH. Stanford University collection housed at the California Academy of Sciences, San Francisco; SU. Yokosuka City Museum, Japan; YCM.

### *Myersina*

*Myersina* Herre, 1934: 89 (type species: *Myersina macrostoma* Herre, 1934, by original designation).

#### DIAGNOSIS

Gill membranes connected to form a distinct fold across isthmus under a point between eye and posterior preopercular margin, attaching to isthmus below eye. Vomer protrudes ventrally into mouth, anterolateral margins enlarged, with fleshy lobes. Sensory papillae on cheek in several short transverse rows radiating from eye; transverse rows under eye not extending below longitudinal row, which extends posteriorly from near posterior end of jaws. Mandibular papillae in two parallel longitudinal rows on chin. Outer row of teeth enlarged in both jaws. A pair of enlarged posteriorly directed teeth near middle of upper jaw in posterior-most row. First dorsal fin high, greater than body depth, with some rays prolonged. Dorsal origin slightly behind pelvic origin. Jaws reaching to below middle to end of eye. Body higher anteriorly, tapering posteriorly. Head laterally compressed. Numerous elongate rakers on outer face of first gill arch. Scales cycloid. First

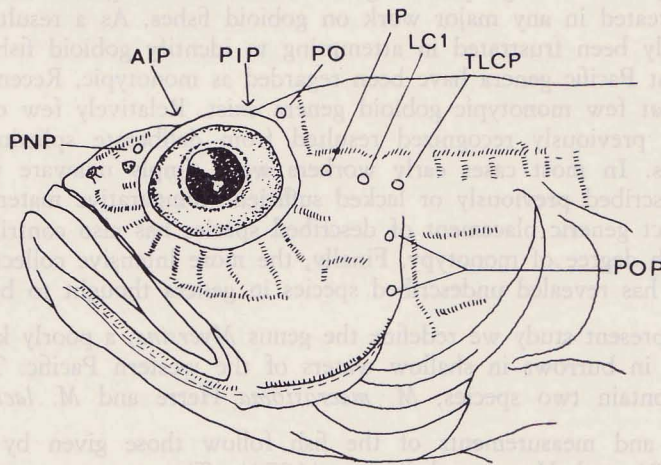


Fig. 1. Sensory papillae and head pores in *Myersina lachneri*, based on holotype and paratypes. Anterior interorbital pore, AIP; posterior nasal pore, PNP; posterior interorbital pore, PIP; postorbital pore, PO; infraorbital pore, IP; lateral canal pore, LC1; terminal lateral canal pore, TLCP; preopercular pores, POP.



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dorsal fin rays VI. Second dorsal fin rays I, 10. Anal fin rays I, 9-10. Pectoral fin rays 15-16. Longitudinal scale count 45-55. Transverse scale count 15-23. Gill rakers on outer face of first arch 5-6 + 1 + 16-19. Head pores: a posterior nasal pore adjacent to each posterior nostril; a median anterior interorbital pore present or absent; a median posterior interorbital pore above end of eye; a post-orbital pore behind each eye; an infraorbital pore below each postorbital pore; a lateral canal pore behind each infraorbital pore (absent in one specimen of *M. lachneri*); and a terminal lateral canal pore above posterior preopercular margin; two (or rarely 3) preopercular pores (Fig. 1).

### DISCUSSION

This genus was originally described as having flat vomerine teeth (Herre, 1934). As noted by Akihito and Meguro (1978), there are no vomerine teeth, but there is a fleshy lobe at each side of the front of the vomer, which can be mistaken for a tooth.

The relationships of *Myersina* are at present uncertain. Akihito and Meguro (1978) suggest a possible relationship with *Cryptocentrus*, but the gently sloping snout, development of numerous elongate gill rakers, and the formation of a free fold across the isthmus by the branchiostegal membranes suggest that the relationship may not be close. The membrane across the isthmus is uncommon in gobiids, but occurs in *Stonogobiops* (Polunin and Lubbock, 1977). *Stonogobiops* has true vomerine teeth, a blunt snout, and short gill rakers. The relationships of these genera are under study by the senior author.

Currently only two species of *Myersina* are known. These have been collected from burrows in mud in mangrove lagoons, and from a reef.

### KEY TO SPECIES

1. Anterior interorbital pore usually absent. A lateral stripe on body and no distinct transverse bands. No scales in front of a line from upper pectoral base origin to or just behind sixth dorsal spine. Anal rays usually I, 9. Japan and Philippines ..... *M. macrostoma*
1. Anterior interorbital pore present. A lateral stripe on body and 6 or 7 distinct transverse bands. Scales extending forward to under third dorsal spine. Anal rays I, 10 ..... *M. lachneri*, n.sp.

### ***Myersina lachneri* n.sp.**

(Figs 1 and 2)

### DIAGNOSIS

Second dorsal and anal fin rays I, 10. Anterior interorbital head pore present. Caudal fin pointed in both sexes. Body partly scaled, with scales extending forward to below a line from third dorsal spine of first dorsal fin to pectoral base. Head naked. Body with 6 or 7 vertical bands.



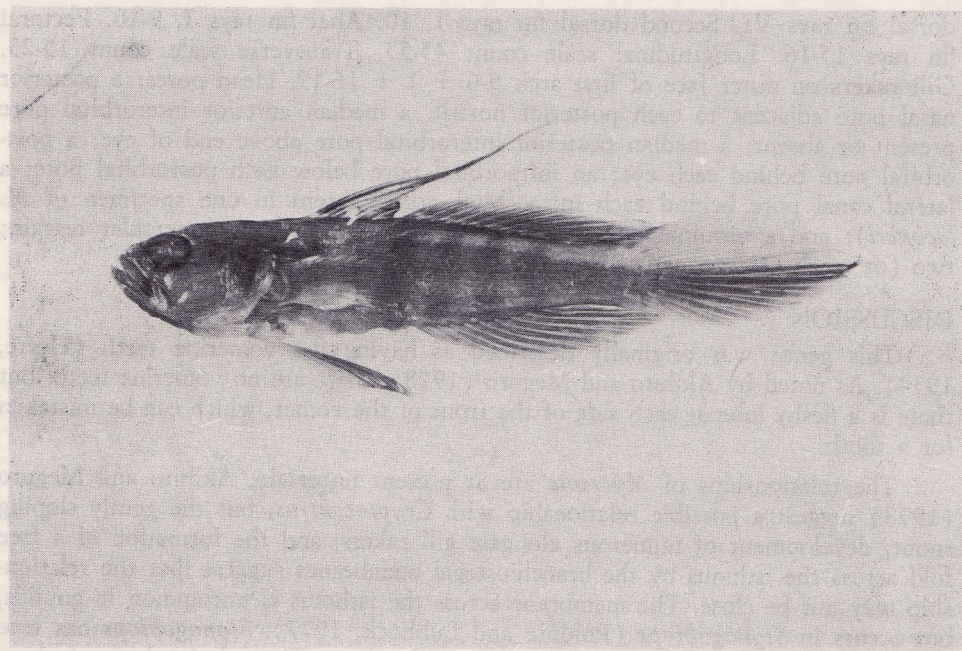


Fig. 2. Holotype of *Myersina lachneri* (preserved).

# DESCRIPTION

Based on 4 specimens, 22-26 mm SL. Counts and measurements are given in Table 1. Branchiostegal rays 5 (in 2). Vertebrae 10 + 16 (in holotype). Head strongly compressed, cheeks not bulbose. Snout shorter than eye length, gently sloping in lateral view, with snout tip in horizontal line from middle of eye. Eye 3.0-3.4 in head. Interorbital very narrow, less than pupil diameter. Mouth large, oblique, forming an angle of about  $40^\circ$  with body axis; jaws end under a point below middle to posterior half of pupil. Gill rakers on outer face of first arch slender and elongate, longer than gill filaments ventrally. Rakers on inner face of first arch and both faces of other three arches developed as short knobs. First four dorsal spines greatly elongated, second or third spine longest, reaching to above posterior end of second dorsal fin to above base of caudal when depressed. Fifth dorsal spine shorter than others, only slightly elongated. Sixth dorsal spine widely separated from fifth, and short and not prolonged. Pectoral rays branched except for uppermost and lowermost rays. Posterior margin of pectoral fin obtusely rounded, reaching to above anal origin. Pelvic disc large, reaching to below second or third anal ray. Caudal tip pointed in both sexes; segmented rays 8-10 (from top) longest; ray 9 produced into short filament in single female. Body covered with cycloid scales, except for two naked anterior



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patches, one extending forward from below second dorsal spine to upper pectoral fin base, and the second from just before anus to behind middle of pectoral fin base. Midline of belly naked. Nape and head naked. Urogenital papilla of male long and with pointed tip; broad and blunt-tipped in female.

TABLE 1. Counts and measurements (in mm) of types of species of *Myersina*.

	<i>M. macrostoma</i>		<i>M. lachneri</i>		
	Holotype SU 26770	Holotype BMNH	BMNH	Paratypes AMS	AMS
Sex	♂	♂	♂	♂	♀
First dorsal	VI	VI	VI	VI	VI
Second dorsal	I,10	I,10	I,10	I,10	I,10
Anal	I,9	I,10	I,10	I,10	I,10
Pectoral	16	16	15	16	16
Segmented caudal	17	17	17	17	17
Branched caudal	—	14	13	—	14
Longitudinal scale count	55	51	45	48	50
Transverse scale count	23	20	21	—	18
Gill rakers on outer face of first arch	6+1+19	6+1+17	6+1+16	6+1+19	5+1+16
Standard length	18.7	25.7	22.2	24.7	26.0
Head length	6.2	7.9	6.4	7.2	7.7
Head depth at preopercular margin	4.0	5.4	4.5	5.2	5.1
Head width at preopercular margin	3.1	3.8	3.2	3.7	3.6
Snout length	1.1	1.9	1.5	1.7	1.6
Eye length	2.0	2.3	2.9	2.4	2.4
Suborbital width	0.4	0.5	0.4	0.6	0.5
Predorsal length	7.2	9.4	8.6	8.8	9.5
Preanal length	10.6	14.5	12.6	14.9	15.1
Prepelvic length	6.0	7.4	6.9	6.9	6.9
Pectoral length	4.8	6.8	6.0	7.0	6.5
Pelvic length	4.2	7.9	6.9	6.9	6.9
Depressed dorsal length	8.3	19.2	14.2	14.5	18.7
Third dorsal spine length	7.2	19.0	14.0	14.5	18.5
Body depth at anal origin	3.7	5.1	4.2	4.9	4.9
Caudal peduncle length	3.8	4.6	4.9	4.8	5.2
Caudal peduncle depth	2.3	2.9	2.6	2.7	2.9

## COLOURATION IN ALCOHOL

Head and body brown. Faint dark brown stripe extending back from posterior margin of eye, expanding into large brown spot covering upper half of operculum. Stripe continues on body from behind pectoral fin base and above midside anteriorly and sloping slightly downward, crossing midside below end of second dorsal fin, and reaching below midside on caudal peduncle; extending to end of caudal fin below midline of fin, and expanding ventrally to cover most of lower half of caudal fin. Body with 6 or 7 vertical bars, width about equal to eye diameter; bars slightly oblique, sloping downward and forward; 2 bars under first dorsal fin, 4 bars under second dorsal fin, and sometimes a bar on caudal peduncle; posterior 3 bars faint in female. All fins except pectoral dusky



to dark brown. Membrane between first two dorsal spines black, darkest near body; a dark diffuse mark on membranes from behind fourth dorsal spine to end of fin. Second dorsal fin with a light grey stripe just above body; distal margin of fin clear or light grey and an elongate dark brown mark on membrane between successive rays. Female also with a light central area between rays, extending parallel to rays. Upper posterior half of caudal fin with clear margin, followed below with a very faint grey stripe, followed by a thin clear area. Pectoral fin clear to light brown.

#### DERIVATION OF NAME

For Dr. Ernest Lachner, in recognition of his contributions to systematics of gobioid fishes.

Material Examined: Holotype — BMNH 1980.5.21:1, a 25.7 mm SL male, in mud burrows at 1-2 m depth, Blanche Bay, New Britain, Papua New Guinea. Paratypes — AMS I. 20831-001, 2(24-26 mm SL), and BMNH 1980.5.21:12, 1(22 m SL), taken with holotype.

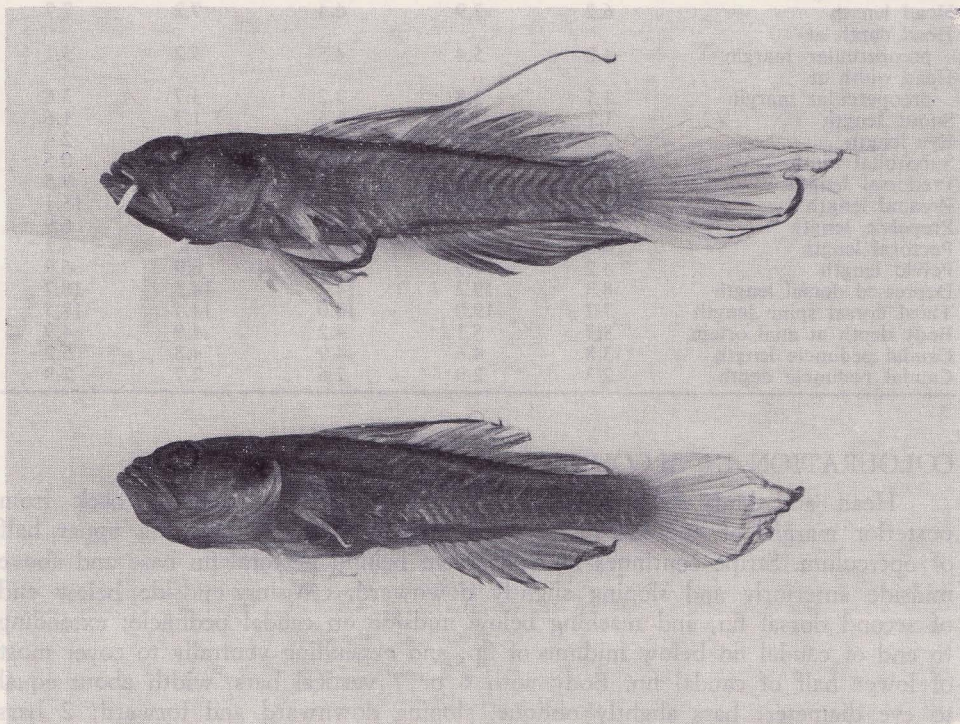


Fig. 3. *Myersina macrostoma* male (upper) and female (lower) from Japan (preserved). Note caudal fin damaged in both specimens and shape differences not apparent.



***Myersina macrostoma***

(Figure 3)

*Myersina macrostoma* Herre, 1934: 90 (Culion Harbour, Philippines). — Akihito and Meguro, 1978: 295 (Japan).

DIAGNOSIS

Second dorsal fin rays typically I, 10. Anal fin rays usually I, 9. Anterior interorbital head pore usually absent. Caudal fin pointed or with an obtusely rounded margin in females, truncate in males. Body scales reduced, with scales extending forward in a wedge from end of base of first dorsal fin to behind pectoral base. Belly naked. Body with a distinct horizontal stripe from behind eye to caudal base and no vertical bands.

COLOURATION IN ALCOHOL

Based on male and female from Japan (YCM 2632-5 and YCM 2632-8). Head and body light brown. A large brown spot covering upper half of operculum. A faint broad brown stripe extending from end of eye to base of caudal fin. Median fins dusky. First dorsal fin with an elongate black mark covering membrane between first two dorsal spines from just above base, fading dorsally. Second dorsal fin with four rows of faint brown oval spots, slightly smaller than pupil. A faint blackish spot around middle of sixth dorsal spine. Anal fin dusky, becoming darker near distal tip in male. Caudal fin dusky, darker below in male. Pectoral fins clear. Pelvic disc dusky, darker posteriorly in male.

HOLOTYPE

The holotype of *Myersina macrostoma* was compared with the two specimens from Japan. Data on additional material from Japan was kindly provided by His Imperial Highness, the Crown Prince of Japan and Mr. K. Meguro. The holotype has the body scales extending along the back to below the sixth dorsal spine and then continues obliquely to just behind the pectoral base, leaving a large naked wedge under most of the first dorsal fin. Akihito and Meguro (1978) recorded a lateral scale count of 62, but recounting gives a count of 55. In Japanese material the scale count ranges from 51 to 55, while in *M. lachneri*, the count is from 48 to 51. However, too few specimens are available to determine if the difference is significant. Similarly, the upper jaw reaches to the end of the eye (15.5% of SL) in holotype, while in the males from Japan the jaw length varies from 16.1 to 18.7% of SL, but the holotype is considerably smaller than the other material. Males of similar size in *M. lachneri* have a jaw length of 12.8 to 14.9% of SL, and the jaw ends under the posterior half of the pupil. In the holotype of *M. macrostoma*, the anterior interorbital pore is absent, and the anal ray count as well as other meristics agree with Japanese material. Although the colouration of the holotype has faded, Herre (1934) mentioned the horizontal



stripe, but did not indicate any vertical bars. He indicated that the stripe continues onto the upper part of the caudal fin, but the caudal fin is darkest ventrally in the preserved holotype. In Japanese material the whole caudal is dark, but generally darkest ventrally in males. The tip of the caudal fin is broken off in the holotype.

## DISCUSSION

This species has recently been redescribed by Akihito and Meguro (1978). The papillae and head pores are similar to *M. lachneri*, but the anterior interorbital pore is usually absent, although present in 2 of the 9 Japanese specimens. Generally *M. macrostoma* has 2 preopercular pores, but one Japanese specimen has 3 pores on both sides and two have 3 pores on one side and 2 on the other.

This species has been collected from a reef in the Philippines and from mangroves in burrows in Japan.

## MATERIAL EXAMINED

Holotype, SU 26770, an 18.7 mm SL male, Culion Harbour, Philippines. YCM 2632-5 and -8, 2(35-36), mouth of Shiiu River, Magura, Ishigakijima, Okinawa Prefecture, Japan.

## ACKNOWLEDGEMENTS

We would like to thank His Imperial Highness, the Crown Prince of Japan, Mr. K. Meguro, and Mr. M. Hayashi for making fresh material available of *M. macrostoma*. Dr. W. Eschmeyer made the type available of *M. macrostoma*. The Crown Prince of Japan and Mr. K. Meguro made unpublished data available for Japanese material. H. K. Larson and D. Rennis drew the figure.

## REFERENCES

- AKIHITO, P. and MEGURO, K. (1978). First record of the goby *Myersina macrostoma* from Japan. *Jap. Jour. Ich.* **24**(4): 295-9.
- HERRE, A. W. (1934). Notes on fishes in the Zoological Museum of Stanford University. I. The fishes of the Herre Philippine Expedition of 1931. (Newspaper Enterprise Ltd.: Hong Kong), 106pp.
- HOESE, D. F. and STEENE, R. (1978). *Amblyeleotris randalli*, a new species of gobiid fish living in association with alpheid shrimps. *Rec. West. Aust. Mus.* **7**(1): 27-37.
- HUBBS, C. L. and LAGLER, K. F. (1958). Fishes of the Great Lakes Region. (Cranbrook Institute of Science: Bloomfield Hills, Michigan), 213pp.
- POLUNIN, N. V. C. and LUBBOCK, R. (1977). Prawn associated gobies (Teleostei: Gobiidae) from the Seychelles, western Indian Ocean: systematics and ecology. *Jour. Zool. Lond.* **183**: 63-101.